What's Next at the Point of Sale?

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In the film, *The Graduate*, the young hero was given advice for his future in one word: "plastics." Today, that advice might take two words: "electronic terminals." What is this product that fascinates customers, is loved by retailers, intrigues Wall Street, and is the object of fierce competition by manufacturers?

What are "terminals"?

It is a word widely used even by non-technicians in retailing. Instead of referring to more descriptive "electronic cash registers," they say "terminals" because the word has a definite meaning in EDP jargon, and in that area it is quite descriptive. It is the device at the end of the line, the tentacle that reaches out and touches the end user of a complex EDP sysem—in retailing, the customer.

The system behind the retail terminal is already complex and getting more so—in terms of hardware, software, communications, systems planning, training requirements, and more. The familiar cash register sat out there, stolid and self-sufficient, doing its job without causing much concern. On the other hand, the electronic terminal needs much care and feeding in terms of instructions (programming), communications (in-store wiring and external phone lines), control (a minicomputer that tells it what to do and when), and so forth. Of course, a computer is needed at the other end to run the whole system and produce usable data. This computer is now generally referred to as the "host," to distinguish it from secondary computers that may exist in the system.

Terminal systems are not confined to one segment of retailing. They impact every kind of store—food, drug, department, discount, clothing, and so on. Food is a special case, however, opposed to soft goods or general merchandise, and is discussed separately in an article on the supermarket system.

Why has the electronic point of sale terminal had such a radical impact on retailers? That question is easiest to answer in terms of the curve of technological progress. For almost a hundred years, the mechanical cash register has performed well for retailers—recording sales and safeguarding cash and, at the same time, struggling to keep up with an increasing demand for data capture at the time of sale. But without adequate technological innovation, the mechanical cash register has not been able to keep up with the demand being made on it.

That is not to say that there was no innovation. The modern cash register is a mechanical marvel. Features like punched paper tape and optical scanning represent great strides that are still the mainstay of automatic data collection in retailing today. Multiple totals, interlocks, floor audit systems, etc.—all of these are a great credit to the ingenuity of the cash register makers.

But limitations were built into the mechanical aspects of the machine. When the electronic point of sale terminal was introduced, its effect was felt immediately—and that is why the retail industry almost overnight dropped the cash register for the electronic terminal.

With the electronic terminal, the customer no longer has to wait for a laboriously written (and sometimes inaccurate) charge sales check. Instead he gets a crisply printed document that is highly legible, accurate, and, with the later model machines, describes the product in plain language—such as "radio."

The terminal also benefits the retailer. Consider the cost differential at today's wage rates between printing the sales check and writing it by hand. And look at the value of the accuracy. Usually when a salesperson writes the wrong price or wrong description on a sales check, it winds up in a telephone call from the customer—an "adjustment" in retail terms. This is a costly process that can be

reduced substantially by use of the electronic terminal.

Credit is another area where the terminal can make a major contribution. One of the major problems of retailers originates with people who do not pay their bills, or who steal or forge credit cards. Elaborate systems have been installed at great cost to the retailer (and ultimately to the customer) to prevent the misuse of credit privileges. We have all seen the clerk phoning for credit authorization at the point of sale. This is no longer necessary when the terminal is used. Authorization can be obtained by the machine directly from a central computer file where the customer's credit standing is maintained.

In the early 1960's retailing made the great conversion from manual cycle billing systems to computerized billing. Initially it looked as though costs would be greater with the computer. Actually it turned out to be not only less costly to use the computer for billing, but the only feasible way of coping with the problem. Retailers would not be able to offer the credit services they do today if they still were using the manual methods of a few years ago. The point of sale terminal offers the means to make another quantum jump in the processing of customers' charges.

The retailer today who tried to retain the old manual methods at the point of sale, or the old billing method, would soon find his business grinding to a halt. It is the terminal that gives him the potential to handle increased customer transactions rapidly and accurately. It also records the transaction information directly in machine-readable form. This latter point is important—since it eliminates the need to handle documents, keypunch, process optical or paper tape, or otherwise render data into machineable form.

Other Terminal Systems

Point of sale terminals are not the only kind to be considered, of course. Two other types are the point of receipt terminal and the merchandise management terminal.

The former is used at the receiving dock and consists of a CRT and a printer. CRT stands for cathode ray tube—it is really a TV screen used for displaying information instead of pictures. Here is how it works.

Inquiries are made to the computer memory when shipments come in. Order information is displayed and receipt information entered for comparison—receiving locations can be advised by the display screen what shipments to expect that day, for example. Once a shipment has been compared to its order and accepted, the information regarding it is passed along electronically to activate auto-matic price ticket-making and to set up the payable in the accounting department.

The merchandise management terminal also consists of a CRT and a printer. It is located in the buyer's area or in the merchandise manager's office and provides two-way communication for the computerized merchandise information system. For example, a buyer can call out on the CRT what amounts to a page from the old black book. He can review it and indicate the action to be taken by using the keyboard on the terminal.

At this point someone always says: "Yes, but you can't take it with you—to the market." That's where the printer comes in. Selected information can be printed out as required—although the use of paper printout in general will drop. It goes without saying that this terminal can be used to initiate orders, authorize transfers, implement price changes, and perform other functions connected with merchandising.

If these techniques seem to be farfetched for all but the large, sophisticated store, they really are not. The foregoing is not only technically possible, the equipment or "hardware" to do it exists. In fact, in one form or another these developments are taking place right now. If terminals are not in common use everywhere, it is because we have not reached a saturation point yet in their installation. This limits what can be done—temporarily.

The situation recalls the early days of the telephone—there were not too many people you could talk to. But within three or four years, the world of terminals will look very different and those who have not switched will be at a severe disadvantage.

Smaller stores should not feel left out. With lowering production and technology costs, with increasing investment in on-line "service bureaus," with recognition by suppliers of the importance of the smaller store market, and with the expanding use of minicomputers and other technological advances—the terminal-oriented system will come within reach of every business that has the need, desire, and fortitude to go after it.

The hardware considerations and technological aspects, complex though they may be, are not the most difficult part. As always, the challenge is to make the system work so that it helps management to attain its ultimate objective—serving the customer.

What type of electronic terminal does a store need? There are many to choose from. The following chart illustrates some of the characteristics of the major POS terminals being offered today by the principal equipment manufacturers. All are for use in general merchandising.

What Are The Characteristics of Today's Major Electronic Terminals?

MANUFACTURER/ PRODUCT / CHARACTERISTIC	IBM 3650 Store Retail System	NCR NCR 280 (4 Sub Models)	NCR NCR 230 (Grocery and Variety)	NCR NCR 250 (Grocery and Variety)	NCR NCR 255 (Grocery and Variety)	AMERICAN REGITEL CORP. Regitel
Ticket Reader	Wand Plus Remote Reader	Optical Wand	None	Wand	Wand	Kimball, Dennison Wand Adaptable
Calculation	At Terminal	At Terminal	At Terminal	At Terminal	At Terminal	At Store Controller
Display	8 Digit Display For Operator/ Customer	Operator and Customer	Operator and Customer	Operator and Customer	Operator and Customer	Operator, Remote Customer Display Optional
Printer	3 Station Alphanumeric	3 Station Alphanumeric	Sales Slip and Journal Tape	Sales Slip and Journal Tape	Sales Slip and Journal Tape	3 Station Alphanumeric
Hard Totals	4 + Transaction Count	3 or 56	29 + 7 Trans. Totals + 5 Balancing Totals	86	56	2 Offline
Tape/Cassette at Terminal	No	No	No	Yes	No	No
½" Tape at Central	No-Disc.	Yes	No	Yes	Yes	Yes
Manager Readout	On 3284-3 Printer and at Terminal	At Terminal & Controller	At Terminal	At Terminal	At Terminal	Yes
Network Control						
Stand Alone	Yes	Yes	Yes	Yes	Yes	Yes
Polling	No	No	No	No	No	No
Store & Forward	Yes	Yes	No	Yes	Yes	Yes
On-Line	Yes	Yes	No	No	No	Yes
Dual Components	Optional	Optional	No	No	No	Optional
Terminals per Controller	191	200	—	—	16	119
Terminal Programming	Only Through Host 370	Through Keyboard	At Terminal	At Terminal with punched paper tape	At Terminal	Through Controller mini
Credit Authorization/ Type	Negative, Restrictive, Floor Limit, Host Positive	Negative and Full Positive	No	No	No	Yes—Negative or Full Positive
Application Software	Available Through Host 370	Yes	No	No	No	None
Peripherals	Printer, CRT Display, Ticket Printer/Reader, Port	Tag Reader, Printer, Wand, Data Collector	No	Scanner, Data Collector	Data Collector	Ticket Readers, Credit Pads, can be used as POR
System Architecture	The System is dependent on a Host IBM 370 for control, communications, programming	System is designed to be used with mini-computer as store controller in an on-line mode	System is designed as a stand alone terminal with limited programming options	System is designed as a stand alone terminal with programming via paper tape and collector	System is designed as a stand alone terminal with limited programming	System is designed with program and power built into controller mini

SINGER 902	SINGER 908	SINGER 925	SINGER 928	SINGER 929	SWEDA/LITTON Series 700	UNITOTE Series 302
Kimball and Wand	Kimball and Wand	Kimball and Wand	Kimball and Wand	Kimball and Wand	Wand for tags, cards (magnetic)	Wand for Kimball, magnetic, optic tags
At Terminal	At Terminal	At Terminal	At Terminal	At Terminal	At Terminal	At Terminal
Operator, 7 Digit Customer Display Optional	Operator, 7 Digit Customer Display Optional	Operator, 7 Digit Customer Display Optional	Operator, 7 Digit Customer Display Optional	Operator, 7 Digit Customer Display Optional	13 Digit Operator Display Optional Remote Unit	14 Digit + Optional Customer Display
Sales Tape	Sales Tape	3 Station Alpha-numeric side inser-tion sales slip	3 Station Alpha-numeric side insertion sales slip	3 Station Alpha-numeric side inser-tion sales slip	Journal Tape and Sales Slip or Cust. Receipt	3 Station Alphanumeric Credits in Red
4 + 5 Transaction Counts	69 + 4 Grand Totals + 5 Trans. Counts	4 + 5 Trans. Counts	69 + 4 Grand Totals + 5 Trans. Counts	69 + 4 Grand Totals + 5 Trans Counts	9-Basic Model 725-6 56 as added feature plus further options	2 per Terminal— Controller Unlimited
Yes—½"	Yes—½"	Yes—½" At Terminal or Store Processor	Yes—½" At Terminal or Store Processor	Yes—½" At Terminal or Store Processor	On Model 726	No
Yes	Yes	Yes	Yes	Yes—Also on line	Yes	Yes
At Central Console	At Central Console	At Central Console	At Central Console	At Central Console	At Terminal	At Central Console
Yes	Yes	Yes	Yes	No	Yes (726 or 725)	Yes
Yes	Yes	Yes	Yes	Yes	Yes (725)	Yes
Yes	Yes	Yes	Yes	Yes	Yes (725)	Yes
No	No	Yes	No	Yes	Yes (720)	Yes
No	No	No	No	No	Optional	Optional
180	—	180	—	180	256	160
Through Keyboard	Through Keyboard	Through Keyboard	Through Keyboard	Through Keyboard	At Keyboard and Cassette (725 + 726) At Controller (720)	Through Controller
Yes—Negative	No	Yes—Negative and Full Positive	No	Yes—Negative and Full Positive	Negative and Positive	Negative, Partial Positive, Full Positive with Optional Equipment
Yes—With System 10	No	Yes—With System 10	No	Yes—With System 10	Available	Yes
Yes	No	Yes	No	Yes	Mag. Tape-780 Credit Auth.-760	Wand, Data Collector
System designed for stand alone operation o "smart" terminal	System designed for stand alone operation "smart" terminal	System designed for use with store con-troller or System 10—can stand alone	System designed for use as stand alone system "smart" terminal	Designed for on-line usage with System 10	Models 725, 726 are "smart" stand alone terminals; model 720 is used on line with 701-702 controller	Basic model programmable, controller oriented

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